

Sports dentistry

Departments of Periodontology and Oral Implantology, Rural Dental College, Loni, Ahmednagar, Maharashtra, India

Rajiv Saini

ABSTRACT

Sports dentistry is one of the most recent and upcoming field in dentistry. It mainly includes the prevention and management of athletics-related orofacial injuries and associated oral diseases. The sports or team dentist assists athletes in the prevention, treatment, and diagnosis of oral injuries. The most significant aspect in preventing sports-related orofacial injuries is wearing basic protective devices such as properly-fitting helmets, face masks and/or mouth guards. Dental injuries are the most common type of orofacial injury sustained during participation in sports. Many athletes are not aware of the health implications of a traumatic injury to the mouth or of the potential for incurring severe head and orofacial injuries while playing. The dentist can play an imperative role in informing athletes, coaches and patients about the importance of preventing orofacial injuries in sports. The aim of this paper is to increase professional awareness and interest for orientation toward sports dentistry.

Address for correspondence:
Dr. Rajiv Saini,
Departments of Periodontology and Oral Implantology, Rural Dental College, Loni, Tehsil- Rahata, District, Ahmednagar-413736, Maharashtra, India.
E-mail: drperiodontist@yahoo.co.in

Key words: Dental injury, sports, mouth gaurd

INTRODUCTION

Dental injuries are the most common type of orofacial injury sustained during participation in sports^[1] with the increased popularity of contact sports and encouragement to participate at an early age, the role of the dental profession in relation to prevention of dental and other orofacial sporting injuries has become more important in view of this.^[2] Athletes, coaches, athletic directors, athletic trainers, parents, and members of the dental community should be aware of how individuals who participate in sporting activities are at risk for dental trauma.^[3] The common orofacial sports related injuries include soft tissue injury and hard tissue injury includes those to the teeth and facial bones, such as tooth intrusions, luxations, crown and/or root fractures, complete avulsions and dental-facial fractures. Sports dentistry had its origins in the 1980s^[4] and for persons involved in contact sports, recognition of the injury prone dentition, and expertise in immediate management of dental injuries form the basis of sports dentistry.^[2]

SPORTS INJURIES

Incidence and location

The face is the most vulnerable area of the body and is usually the least protected. Sports-related facial injuries account for 8% of all facial soft tissue injuries. Approximately 11-40% of all sports injuries involve the face. These injuries are most often due to direct hits with a ball or player-to-player contacts. Health care providers for athletes should be familiar with the anatomy of the facial region, the most common types of facial injuries, and the initial management of facial injuries. The most common types of sports-related facial trauma are the soft tissue injuries and the fractures of the "T-zone" bones (the nose, the zygoma, and the mandible). These injuries often occur in combination. Depending on the extent and the types of injury, some injuries can be managed at the sporting event site, with the athlete resuming play immediately. Sports injuries can cause potentially serious broken bones or fractures of the face. Three groups—children and adolescents, middle-aged athletes, and women—are particularly vulnerable. Contact sports have inherent dangers that put young athletes at special risk for severe injuries. Biking topped the list of sports-related injuries, followed by basketball, playground activities, football and a few other sports. Some sports injuries result from accidents; others are due to poor training practices,

Access this article online	
Quick Response Code: 	Website: www.njms.in
	DOI: 10.4103/0975-5950.94465

improper equipment, and lack of conditioning, or insufficient warm up and stretching.

Evaluation of facial injuries

Evaluation of the facial injuries should follow the principles of trauma evaluation and should begin with airway, breathing, circulation, and disability. Examinations of vital signs and mental status are also crucial parts of the initial assessment. After the initial assessment and stabilization, the facial examination is then performed in a systematic manner with particular attention paid to important bony landmarks, neurovascular structures, and soft tissues. The first and key part of the assessment of patients presenting with trauma is called the primary survey. During this time, life-threatening injuries are identified and simultaneously resuscitation is begun. A simple mnemonic, ABCDE, is used as a memory aid for the order in which problems should be addressed (A- airway, B- breathing, C- circulation, D- disabilities and E – exposed environment control). When the primary survey is completed, resuscitation efforts are well established, and the vital signs are normalizing, the secondary survey can begin. The secondary survey is a head-to-toe evaluation of the trauma patient, including a complete history and physical examination, including the reassessment of all vital signs. Each region of the body must be fully examined. X-rays indicated by examination are obtained. If at any time during the secondary survey the patient deteriorates, another primary survey is carried out as a potential life threat may be present. The person should be removed from the hard spine board and placed on a firm mattress as soon as reasonably feasible as the spine board can rapidly cause skin breakdown and pain while a firm mattress provides equivalent stability for potential spinal fractures. Once the potentially life-threatening injuries are excluded, any soft tissue injuries and obvious asymmetries of the facial contour (suggesting underlying bony fractures) are documented. A detailed examination of the face follows. Each health care provider should develop a systematic routine in order to provide a thorough examination. A common approach is starting at the scalp and working down.

Shielding devices in sports dentistry

The most important aspect in preventing sports-related orofacial injuries is wearing basic protective devices such as properly-fitting helmets, facemasks and/or mouth guards. Perhaps the single most important piece of oral/facial protective equipment is a properly fitted mouth guard. Mouth guards should be worn when there is a possibility of body-to-body or body-to-equipment contact. Mouthguards help prevent injuries to the teeth, lips, gingiva, tongue, and mucosa.

They cushion the blows that could cause jaw fractures, dislocations, and trauma to the temporomandibular joint. Mouth guards also aid in reducing the likelihood of concussion by maintaining a separation between the head of the mandibular condyle and the base of the skull.

Mouthguard-Its role and necessity in sports dentistry

Any sport where the potential for dental trauma can exist (such as basketball, soccer, or wrestling) should consider utilizing mouthguards to protect the competitors. The establishments of mouthguard programs for athletes of all ages, genders, and sports may help to reduce the incidence of dental trauma.^[3]

Three basic types of mouth guards are available:

1. Stock mouth guard
2. Mouth-formed mouth guard
3. Custom-made mouth guard

The types which are currently available, custom-made mouthguards fitted by a dentist, have been demonstrated to provide the greatest protection from dental injuries. Such mouthguards should therefore be recommended for use by those who participate in contact sports, and their provision should be actively encouraged by dental care workers,^[1] although some evidence exists to the contrary, the majority of studies have found the mouthguard to be the most effective way of preventing such injuries. It is also clear that the custom-fabricated mouthguard, in particular the pressure-laminated variety, is seen to afford most protection.^[5] According to the American Dental Association, the use of faceguards and mouth protectors prevent more than 200,000 orofacial injuries in football annually.^[6] Thus, mouthguards should be mandatory as an effective device for the prevention of dental and orofacial injuries, as well as reducing the incidence and severity of minor traumatic brain injury.^[7]

Future outlook

It is clear from this review that participation in a number of sports does carry a considerable risk of sustaining dental injury, not only in the so-called contact sports such as rugby and hockey, but also in less obviously dangerous sports such as basketball.^[5] Although it is still in its infancy, sports dentistry is an ever-expanding field. As dentists in practice, whether as general practitioners, specialists, academicians, or researchers, each one of us has a professional responsibility to become involved. Sports dentistry is certain to be a part of our future.^[8]

CONCLUSION

Orofacial injuries that occur during sports activities are largely preventable.^[9] Mouth protection for athletes is

one of dentistry's contributions to sports medicine. It is the responsibility of the dental profession, therefore, to become more active in sports injury prevention programs. Mouthguards provide protection against injuries to the orofacial area, including the teeth, lips, cheeks and tongue, thereby reducing the incidence and severity of injuries that occur during athletic practice and competition. They also have been shown to prevent head and neck injuries, concussions and jaw fractures.^[9] Many athletes are not aware of the health implications of a traumatic injury to the mouth or of the potential for incurring severe head and orofacial injuries while playing. The dentist can play an imperative task in informing athletes, coaches and patients about the magnitude of dental sciences in preventing orofacial injuries in sports. Education of all those involved is the key. Team physicians, dentists, athletic trainers, and coaches must take into consideration both the athlete's previous medical history and the sport. Our emphasis must be on improving the quality of mouth guards for player safety as one way of attempting to reduce the incidence of concussion in athletes.^[10] The epidemiology of orofacial injuries undergoes a paradigm shift with changes in equipment and regulations. There is need to popularize the use of orofacial protective devices in a variety of sports events by interacting with coaches, sports administrators and sports persons as well as familiarizing the Indian dentists in a relatively new field.^[11]

REFERENCES

1. Scott J, Burke FJ, Watts DC. A review of dental injuries and the use of mouthguards in contact team sports. *Br Dent J* 1994;176:310-4.
2. Chapman PJ. Mouthguards and the role of sporting team dentists. *Aust Dent J* 1989;34:36-43.
3. Kumamoto DP, Maeda Y. A literature review of sports-related orofacial trauma. *Gen Dent* 2004;52:270-80; quiz 281.
4. Ranalli DN. Sport's dentistry and dental traumatology. *Dent Traumatol* 2002;18:231-6.
5. Newsome PR, Tran DC, Cooke MS. The role of the mouthguard in the prevention of sports-related dental injuries: A review. *Int J Paediatr Dent* 2001;11:396-404.
6. Powers JM, Godwin WC, Heintz WD. Mouth protectors and sports team dentists. Bureau of Health Education and Audiovisual Services, Council on Dental Materials, Instruments, and Equipment. *J Am Dent Assoc* 1984;109:84-7.
7. Biasca N, Wirth S, Tegner Y. The avoidability of head and neck injuries in ice hockey: An historical review. *Br J Sports Med* 2002;36:410-27.
8. Elliott MA. Professional responsibility in sports dentistry. *Dent Clin North Am* 1991;35:831-40.
9. Flanders RA, Bhat M. The incidence of orofacial injuries in sports: A pilot study in Illinois. *J Am Dent Assoc* 1995;126:491-6.
10. Jackson EW Sr. Commentary: Role of properly fitted mouth guards in prevention of sport-related concussion. *J Athl Train* 2001;36:339-41.
11. Lehl G. Perception of Chandigarh sports coaches regarding orofacial injuries and their prevention. *J Indian Soc Pedod Prev Dent* 2005;6:67-70.

How to cite this article: Saini R. Sports dentistry. *Natl J Maxillofac Surg* 2011;2:129-31.

Source of Support: Nil. **Conflict of Interest:** None declared.